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ABSTRACT

The paper reviews the advantages and disadvantages of using word processing programs with learning disabled students, describes some available programs, delineates criteria for selection of word processing programs, and considers expanded uses of word processing with this population. Advantages of word processing programs for learning disabled students include helping them with written document preparation, editing, and revision. Word processing programs may present a disadvantage in that writers may look better without actually improving their writing skills. Among word processing programs recommended for learning disabled students are Bank Street Writer, Talking Screen Textwriting Program, Quill, and Magic Slate. For any word processing program to be effective, it must be matched with the individual student's needs and capabilities. Future uses of word processors by learning disabled students may include reading (conversion of print into speech for the nonreader), writing from oral dictation, social skills development, and more comprehensive student evaluation. (CB)

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THE WORD PROCESSOR AS A TOOL FOR THE LEARNING DISABLED STUDENT

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THE WORD PROCESSOR AS A TOOL FOR THE LEARNING DISABLE STUDENT

Although learning disabled students are a diverse group, it is recognized that a large proportion of them have difficulty in written language. This may include the physical act of handwriting, spelling, grammar and/or organizing and expressing thoughts (Lerner, 1985). Considering the written language problems of learning disabled students, it is hypothesized that the use of a word processing program in conjunction with a microcomputer may be an effective liaison between the student and writing activities. This is possible because of the technological advances of the last few years.

The purpose of this paper is to discuss the use of a word processing program in conjunction with a microcomputer as a tool for learning disabled students. The paper will: (a) review the advantages and disadvantages of word processing programs; (b) describe some of the available word processing programs; (c) delineate criteria for the selection of word processing programs; and (d) consider expanded uses of word processing with learning disabled students.

Advantages and Disadvantages

The uses of word processing in classes for the learning disabled fall into three basic categories. These

are document preparation, editing exercises, and teacher modeling of editing and revision. Rude-Parkins (1983), in describing the function of the word processor noted the characteristics that make it an ideal tool for the learning disabled student. First, the writer may develop a written document more efficiently because of the ease of preparation, correction, and revision it affords. The "penalty" of recopying when editing and/or correcting is reduced. Beyond this, a word processing program can point out errors, and facilitate the production of multiple copies. It frees the teacher of certain repetitive instructional tasks and offers him/her the opportunity to work on tasks that cannot be managed by the computer. It promotes the production of a neat copy without the mechanical limitations of handwriting. Beyond these services that are directly related to writing, it provides feedback and reinforcement to a student concerning his/her performance. It may increase student motivation, attention span, school attendance, and enhance student attitude.

Word processing is not without disadvantages. Brohaugh (1984) notes that such programs may make the writer look better than he/she is without improving writing skills. The appearance and accuracy of the product may be improved because the student follows the programs editing and revising directives. Unfortunately, the student may not

understand the rationale for the revisions nor generalize the directives to other writing situations. In line with this, the program may promote reliance on the microcomputer and reduce student checking and proofreading. The student who dislikes rereading and checking his/her work may develop the attitude that those tasks are the job of the computer exclusively. Consequently, his/her checking and editing skills are not employed and the habit of checking is not developed. This can be a problem because the word processor may not recognize all errors. For instance, a word may be spelled correctly but not be correct in the context (i.e., 'is' in lieu of 'it'). This is not an error in the eyes of the computer, thus, if the student does not reread it will go undetected.

Beyond Brohaugh's concerns, a number of other possible limitations of word processing are worthy of consideration. First, a teacher may resist using word processors. In some instances, a teacher implements word processing to such a limited extent that it has very little benefit to the student. Without sufficient practice, efficient operation of the program is impossible, much less improvement of written language skill. Second, the student's lack of necessary typing skills may be a hindrance. Learning to type is a necessary prerequisite to using a word processor. If the student lacks the skills, he/she is likely to

develop bad habits that will have to be corrected later. Further, the implementation and use of word processing in a classroom may be without clear educational objectives, goals, implementation strategies and/or evaluation procedures. If the process is motivated by a desire to do something even if it is wrong or poorly conceived, then its effectiveness is seriously hampered. Another limitation is the language and reading levels of some programs. Although a program may have something to offer the student, its reading and/or language level may not be appropriate.

These concerns do not automatically dictate the demise of word processing as a developmental tool for learning disabled students. However, since transfer from computer usage to pencil and paper tasks is a consideration, they do point to questions that must be addressed in research, as well as, curriculum design and implementation.

Research concerning the use of word processing with learning disabled is limited as it is with other types of students, both handicapped and nonhandicapped. Kerchner and Kistinger (1984) reported that learning disabled students who used word processing and a process approach to writing (prewriting, drafting, teacher and peer conferencing, revision, and publication) made significant gains in writing ability when compared with the control group who had no special intervention. In addition, Morocco and

Neuman (1985) observed resource rooms using word processing. They concluded that word processing could facilitate writing but that the type of writing instruction had to be taken into account when analyzing the benefits of word processing.

Studies with nonhandicapped students provide some positive feedback concerning the use of word processors. Specifically, Womble (1984) provides a favorable picture of word processing as a teaching tool. In that study, tenth graders spent more time reworking text; were better able to determine needed changes; and found the revision process less arduous as a result of the experience.

Other studies, however, emphasize the need for caution. Cross and Curey (1984) note that the overall effect of word processing on writing varies with the writer and is influenced by general teacher and student factors. Broad statements about the effect of word processing on writing are not supported. A study by Stromberg and Kurth (1983) indicates that although students are positive about their word processing experiences their writing skills do not improve. Likewise, other research (Kane, 1983) indicates that a student's writing process did not change as result of the word processing experience. Composing continued to be linear. The student worked to perfect each sentence before going on to the next. Revisions were

primarily corrections of spelling or punctuation.

The later studies suggest that word processing does not improve writing. However, it may be too early to draw any definite conclusions. First, current research may be hampered by the sensitivity of the instruments employed to measure student growth and change. Perhaps change takes place that a test does not measure or, on the other hand, the measured change is artificial or temporary. Second, the short duration of each study must be recognized. Very little change takes place in two weeks or two months. Yet, these are typical time periods for such studies. Third, the small number of students included in each of the studies reduces the generalizability of the findings.

Available Word Processing Programs

Several word processing programs have been recommended for the learning disabled student. One of these is the Bank Street Writer. This was the first word processing program designed by educators and tailored specifically for children. It is recommended because it has a well-organized and easily understood tutorial format. Most children can work through the tutorial in less than an hour and become immediate users. However, one major drawback is that the edit mode is difficult and awkward to use (Littlefield, 1983). It is available for all major microcomputers at a cost of less than $100.00.

Another excellent program is Talking Screen Textwriting Program (TSTP) by Teresa J. Rosegrant and Russell A. Cooper. This program interfaces word processing with synthesized speech. Intended to provide support to early readers and writers, it is used with children as young as 3 and with non-writing students as old as 14. The program allows the computer to read to the student (a word, a line, or a whole page of the document). Thus, solving the problem of a student who cannot recall a word. TSTP requires Apple IIe with 128K, Apple IIGS, Apple IIc, or Franklin ACE 2000. An Echo+ and a speech synthesizer board is required for the Apple IIe and a Cricket speech synthesizer is needed for the Apple IIc. In places, the documentation is ambiguous and poorly organized.

The third suggested program is Quill (developed under a grant from the U.S. Department of Education). Quill is both a word processing program and a set of instructional materials. It utilizes the process approach to writing by taking students through prewriting, writing, and revision. Quill has five components: Planner, Library, Writer's Assistant, Mailbag, and Publisher. The Planner is designed to help students brainstorm and generate ideas. This program facilitates the prewriting phase. The Library enables the student to store his/her documents and access manuscripts on various topics. Access can be via title,

author, or keywords. The Mailbag encourages informal writing. The Writer's Assistant is the traditional word processing program. The Publisher formats student documents in the traditional newspaper style for printing. Information about the package is available from DCH Software, D.C. Heath and Company, 125 Spring Street, Lexington, MA 02173.

Interlearn, Inc. developed three writing support programs for Quill: (a) Poetry Prompter, an interactive program for various kinds of poetry, (b) Computer Chronicle Newswire, an electronic newsletter, (c) Adventures of Horus, an interactive story creation package. Other support programs which develop writing skills include: (a) Story Tree, Scholastic, (b) Story Machine, Spinnaker, (c) Story Maker, On-Line and (d) Story Maker, Bolt, Beranek and Newman.

A review in Journal of Learning Disabilities, (1985) indicates that the writing contexts provided by Quill are very good for generation of ideas, writing of preliminary ideas, and sharing ideas. Reported weaknesses of the program are lack of screen displayed feedback for certain commands, inadequate explanation of the editing commands to delete a blank line, and the text editor does not include underlining and sub/superscript. Overall, the review is favorable.

Another review by Olds (1985) praises the pedagogy demonstrated in Quill. However, he describes the word processor (Writer's Assistant) as awkward and complicated. One feature of the word processor which is unique is the MIX command which displays sentences of a specified paragraph separately underneath one another. The format of the display aids the writer in analyzing organization and sentence relationships.

Reviews of Quill indicate that the separate programs are well structured to guide students through the stages of writing. The main criticism is the complexity of the word processor. Teachers may need to conduct their own evaluations to determine if it is too cumbersome for their student's initial exposure to word processing.

Another highly praised word processing program is Magic Slate, produced by Sunburst Communications. It is designed to "grow" with students. Young children or beginning users can start word processing with simple commands. The program comes in 20-40 column BASIC and with an interface card, it can be changed to an 80 column advanced version. Magic Slate has standard features including boldface and italics, and the advanced version has the capability of simultaneously storing two files in memory and creating screen windows to allow work on both windows at once.

Support programs for Magic Slate include I Can Write and Be A Writer. I Can Write is a series of 25 activites designed for second grade. Each child gets an individual data disk. When a student completes a writing activity, it can be printed out to become part of the student's personal book. The program also allows the teacher to modify lessons. Be A Writer is a similar program designed for third grade students.

Selection of Word Processing Programs

Many word prccessing programs are on the market. In selecting a program the best advice is to match a student's needs and capabilities with the word processor. For drill and practice programs, the user may be able to gain sufficient familiarity for evaluation purposes quickly. Unfortunately, with word processing programs, this is less likely to be the case. To be a good judge of a word processing package, one must become very familiar with it (a process that takes time). Thus, reviews of word processing programs may not be as dependable as those of drill and practice software. This is especially true of new programs, which may have been reviewed before the reviewer took the time for extensive use.

Because the market is being flooded with word processing programs, each having its own unique features, selection of an appropriate program to use with learning

disabled students may be difficult. However, through observation some guidelines have been developed. MacArthur and Shneiderman (1986) observed learning disabled students' use of word processors. They noted that students tend to use the simplest procedure for cursor movement, insertion, and deletion rather than the most sophisticated. In addition, students often were confused about the way the text was formatted on the screen. This type of difficulty might be eliminated with a "what you see is what you get" program. Overall, the structure of the processor should be simple and logical. Next, saving and loading features should include prompts for verification. Print formats should have default values that are accessed only if the user requests them. Vocabulary should be suitable for the user. Therefore, the reading and language age of the student should be compared to the levels of the program. The clarity and completeness of the literature that accompanies the program is another consideration in the selection process. Finally, the role the word processor will play should be reviewed. The program should allow the student "room to grow." That is, it should have the capability to handle greater writing demands than the student will make initially. This will allow the program to be used as the student's writing ability increases. However, it is not necessary to buy far more word

processing capability than the student will need.

Implications for the Future

A discussion of the role of the word processor in the education of the learning disabled student would not be complete without some discussion of the probable future. It is unlikely that the word processor will cease to be a part of the overall educational program of this student. In fact, its role will probably be expanded.

In the future, the word processor may be reading for the learning disabled student. The technology is currently available to allow a machine to read printed material to a listener but the cost is prohibitive. With a lower cost version of something like the Kurzweil Reading Machine Series 400 (Kurzweil Computer Products, 33 Cambridge Parkway, Cambridge, MA 02142) the lack of proficient word recognition skills would no longer be a handicap. Print would be converted to speech. Such a process would minimize the influence of lower reading ability on achievement in content areas.

Likewise, the word processor could become the scribe and/or editor for a learning disabled student who has difficulty with the mechanics of written expression but is proficient in oral expression (not the student who is lacking in both areas). In the scribe situation, the student could dictate information. The microcomputer could

produce the information in a written format. As an editor, the microcomputer's task would be to perfect the information that is entered. Early forms of the necessary spelling checkers, grammar and style analysts, dictionary programs, and proofreaders are currently available. When these are perfected, they could assume total responsibility for editing.

The microcomputer could also serve a valuable role in the development of the social skills of learning disabled students. With a "smart system," the microcomputer could assist the student in learning to cope with many of the situations that cause him/her great difficulty. The process would allow the student to enter information about a situation as he/she preceives it. On the basis of this, the computer would pose questions to the student in order to gain addition information. With the necessary information, the computer could offer the student information about how others feel when confronted with this matter, generate possible solutions and the probable outcomes of implementing each.

A problem that is commonly cited in the area of learning disability is the difficulty with grading and the discrepancy that exists between the grades on the transcript of a learning disabled student and his/her ability. The microcomputer could serve as the medium for

developing portfolios for learning disabled students to replace or supplement the transcript. The technology is available to store samples of a student's work that demonstrate both competencies and deficits.

Summary and Conclusions

Word processing programs are available for all microcomputers. They vary in terms of complexity, adaptability to the needs of the learner, and appropriateness for instructional use. Many of them can serve as an aid to the learning disabled student in written language activities. At this time, the advantages of employing a carefully selected program may out weigh the disadvantages. However, the research is not conclusive regarding the long term impact of such programs on the development of writing skills for learning disabled students.

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